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An in-depth look at Enterprise Bill of Material Management

Business, especially an Original Equipment Manufacturer (OEM), needs a common language that can be shared throughout the organization and their extended supply chain to convey the needed information and maturity around the product/service the company offers. In essence, a Bill of Material is the common language that is used in a company to enable customers to buy your product/service, provide the requirements for your internal organization and extended supply chain, to deliver the product/service and provide the right information for your service organization to service the product/service while it's in the field.

If we take this one step further and think about the lifecycle of your product/service, the context of what information is shared and the maturity of it, is so critical to getting the desired outcome at the end of all the hard work and effort an organization puts into delivering new product/service to the market and to their customers.. There needs to be clarity to the message in terms of the audience—Engineering, Manufacturing, Suppliers, Service and Customers. The ability to recognize and align the digital context of the product to the physical asset/service provided, is key in an organizations' ability to provide the correct features, documentation and service throughout its infancy as its developed, all the way to deliver and support to the end customer.

When we talk about aligning the digital product representation to the actual physical asset/service, one of the most difficult concepts to keep aligned, is the ability to manage the changes to the product/service through its lifecycle and solidify the configuration. From the early days when the product/service starts as an innovation, through design and design validation, to manufacturing validation, production launch and into service. The hundreds to potentially thousands of continuously changing components, sub-assemblies need to be managed to deliver the actual configurations of the products that are produced and delivered. It's a monumental task but a required capability to drive efficient new product launches, to create an optimized and efficient manufacturing capability and the ability for "first time" resolution for issues in the field. Without it, the organization is constantly searching for "What the configuration" is/was when the design was validated; when the production process was validated or when the service technicians are trying to resolve any in the field issues.

In order to establish this working environment within your organization, you need to develop the following three capabilities:

BOM CAPABILITY #1:

All aspects of your product/service need to be included in the configured bill of material—mechanical parts, electronic components and product software. Without all of these elements, you are only getting a "partial" view of the information needed to support a product/service centric organization.

BOM CAPABILITY #2:

When dealing with product change management and the resulting product configuration, the approach needs to encompass an enterprise bill of material process. The approach needs to include the important "States" within the organization's new product introduction process, production, service and end of life. "States" provide a clear definition of maturity and help explain the contextual aspect of the information. It also provides for a seamless ability to review the progress of the product/service, its verification and validation and the resulting performance of the product/service out in the field.

BOM CAPABILITY #3:

The ability to understand the development and maturity of the product/service can be utilized to vastly improve the current product/service, as well as, being used to provide lessons learned for driving better products in the future. The idea of creating a closed loop of information and learning, starting from the simulated performance in the design context, and validating that during the verification and validation stage, by integrating a connected R&D lab to provide real-time feedback. To understanding the manufactured predicted performance and closing the lifecycle loop with "real-time" performance data from in field units. When you hear the term "Digital Transformation" - the integration of the digital world and its physical twin provides the power of meshing the information and knowledge that can be captured and utilized to create differentiated products/services to your customers! Going from theory to real business value.

If you'd like to go into a deeper conversation on this subject, don't hesitate to contact by either:

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Next Month: Integrating Your AR Strategy to solve the Knowledge Gap